40. (Twice Amended) The dielectric substrate, according to claim 39, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 14.6; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

43. (Twice Amended) The dielectric substrate, according to claim 42, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 10.6; and

said dielectric substrate having a low dielectric loss of 2.9×10^{-3}.

50. (Amended) Buffer layers of the general formula Sr_2RESbO_6, further comprising:

said RE is a rare earth metal selected from the group consisting of Lutetium, Ytterbium, Thulium, Erbium, Holmium, Dysprosium, Yttrium, Lanthanum, Gadolinium, Samarium, Praseodymium, Europium, Neodymium and Terbium;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

said buffer layer having an ordered perovskite crystalline structure.

REMARKS

The Applicants wish to thank Examiner Bos for extending the courtesy of an Examiner's Interview with the undersigned attorney on March 10, 2003 to discuss the claims in this case and arranging for the translation of the Fesenko reference. A previous Amendment dated November 20, 2002 was already submitted in response to the first Office Action in this case and led to the March 10, 2003 Examiner's Interview. The Examiner's Interview has advanced the prosecution of this case and its results are included in this Amendment.

Claims 1-4, 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 42, 43 and 50 are now in the case. No new claims have been added to the case by virtue of this Amendment.

As required by 37 CFR § 1.121(c)(ii), separate marked-up Claim Replacement Pages are enclosed with this Amendment.

In the second and final Office Action, the Examiner rejected claims 1-4, 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 42, 43 and 50 under 35 USC § 103 as being obvious over an article by Fesenko, rejected claims 1-4, 6, 7, 18, 19, 24, 33, 34, 39, 40, 42, 43 and 50 as being obvious over an article by Wittmann et al. and rejected claims 1, 2, 30, 31 and 50 as being obvious over an article by Blasse. It is respectfully submitted that this invention's Sr_2RESbO_6 dielectric substrates and buffer layers exhibit substantially different crystalline structures than those taught by the Fesenko, Wittmann and Blasse references and are therefore not obvious under 35 USC § 103(a). It is respectfully requested that the Examiner reconsider these obviousness rejections and that the claims, as amended, be allowed and pass to issue.

Before discussing the prior art references, Applicants' attorney wishes to briefly describe the claim revisions and clarifications to the claims. It is respectfully submitted that these revisions and clarifications have been made to more clearly and distinctly claim the subject matter that Applicants regard as their invention, without adding any prohibited new matter. Claim 1, as amended, now recites dielectric substrates of the general formula Sr_2RESbO_6, where RE is a rare earth metal selected from a Markush grouping of 14 rare earth metals and the general formula includes an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$. Dependent claim 4, as amended, now recites an Sr_2LuSbO_6 dielectric substrate having an ordered perovskite cubic crystalline structure. Similarly, dependent claim 28, as amended, now recites an Sr_2LaSbO_6 dielectric substrate having an ordered perovskite cubic crystalline structure. Dependent claims 7, 10, 13, 16, 19, 22, 25, 31, 34, 37, 40 and 43 have also been amended to recite the remaining dielectric substrates, such as the Sr_2YbSbO_6 dielectric substrate of amended claim 7, having an ordered perovskite pseudo-cubic tetragonal crystalline structure. These revisions are adequately supported by specification page 3, lines 13-15, which states:

Indexed powder diffractometer data taken using CuKα radiation, reveals these compounds to be ordered perovskites. With the exceptions of Sr_2LuSbO_6 and Sr_2LaSbO_6 that are cubic, all of the other compounds are found to be pseudo-cubic, tetragonal.

(Emphasis Supplied)

It is respectfully submitted that the Fesenko, Wittmann and Blasse references do not teach, suggest or disclose Sr_2RESbO_6 dielectric substrates with ordered perovskite cubic crystalline structure for Sr_2LuSbO_6 and Sr_2LaSbO_6, and an ordered perovskite pseudo-cubic tetragonal crystalline structure for this invention's remaining dielectric substrates and buffer layers. Similarly, claim 50, as amended, now recites buffer layers having the general formula Sr_2RESbO_6, the general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$ and the buffer layers having an ordered perovskite crystalline structure. It is respectfully requested that the Examiner reconsider these rejections, and that the claims, as amended, be allowed and pass to issue.

The Fesenko reference discloses compounds that are not ordered based on the lattice parameters reported on page 3, Column 2 of that reference. The Fesenko reference does not teach, suggest or disclose ordered perovskite cubic crystalline structure for Sr_2LuSbO_6 and Sr_2LaSbO_6, and does not teach an ordered perovskite pseudo-cubic tetragonal crystalline structure for this invention's remaining dielectric substrates and buffer layers. Therefore, it is respectfully submitted that claims 1-4, 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 42, 43 and 50, as amended, are not obvious over the Fesenko article under 35 USC § 103(a) because Fesenko does not teach, disclose or suggest an ordered cubic crystalline structure for Sr_2LuSbO_6 and Sr_2LaSbO_6 and an ordered pseudo-cubic tetragonal crystalline structure for this invention's remaining dielectric substrates and buffer layers.

The Wittmann reference discloses compounds with a number of different crystalline structures based on the lattice parameters reported in Table 1 of that reference. Wittmann teaches orthorhombic, nearly triclinic structure for his Lanthanum, Praseodymium and Neodymium compounds, and cubic not ordered structure for his Samarium and Europium compounds. Wittmann also discloses that his Terbium and Dysprosium compounds are not ordered. Wittmann did not report on Holmium, Erbium or Thulium compounds. The Wittmann reference teaches orthorhombic, cubic, not ordered and not ordered crystalline structures. The

Wittmann reference does not teach, disclose or suggest ordered perovskite cubic crystalline structure for Sr_2LuSbO_6 and Sr_2LaSbO_6, and an ordered perovskite pseudo-cubic tetragonal crystalline structure for this invention's remaining dielectric substrates and buffer layers. Therefore, it is respectfully submitted that claims 1-4, 6, 7, 18, 19, 24, 33, 34, 39, 40, 42, 43 and 50, as amended, are not obvious over the Wittmann article under 35 USC § 103(a) because Wittmann does not teach, disclose or suggest an ordered cubic crystalline structure for Sr_2LuSbO_6 and Sr_2LaSbO_6 and an ordered pseudo-cubic tetragonal crystalline structure for this invention's other dielectric substrates.

The Blasse reference discloses only a single Gadolinium Sr_2RESbO_6 compound, and that reference teaches that his Gadolinium compound provides a cubic perovskite structure. The Blasse reference does not teach, disclose or suggest Sr_2GdSbO_6 with an ordered perovskite pseudo-cubic tetragonal crystalline structure. Therefore, it is respectfully submitted that claims 1, 2, 30, 31 and 50, as amended, are not obvious over the Blasse article under 35 USC § 103(a) because Blasse does not teach, disclose or suggest Sr_2GdSbO_6 with an ordered perovskite pseudo-cubic tetragonal crystalline structure.

Should the Examiner require further information, the Examiner is invited to telephone the applicants' attorney at the telephone number listed below.

Respectfully Submitted,

4/29/2003
DATE

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **TAUBER et. al**
Serial No.: **09/845,108**
Filed: **April 26, 2001**

37 CFR § 1.121 (c)(1)(ii) CLAIM REPLACEMENT PAGES

1. (Amended) Dielectric substrates of the general formula Sr_2RESbO_6 [where] , further comprising:

said RE is a rare earth metal selected from the group consisting of Lutetium, Ytterbium, Thulium, Erbium, Holmium, Dysprosium, Yttrium, Lanthanum, Gadolinium, Samarium, Praseodymium, Europium, Neodymium and Terbium; and

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$.

2. (Amended) The dielectric substrates, as recited in claim 1, further comprising:

said dielectric substrates being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrates having a low dielectric constant in the range of 4.1 to 16.3;

[said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;] and

said dielectric substrates having a low dielectric loss in the range of less than 1×10^{-3} to 9×10^{-3} without a phase transition.

4. (Twice Amended) The dielectric substrate, according to claim 3, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite cubic crystalline structure;

said dielectric substrate having a low dielectric constant of 15.1; and

said dielectric substrate having a low dielectric loss of less than 1×10^{-3}.

7. (Twice Amended) The dielectric substrate, according to claim 6, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 5.1; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

10. (Twice Amended) The dielectric substrate, according to claim 9, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 10.0; and

said dielectric substrate having a low dielectric loss of 2.0×10^{-3}.

13. (Twice Amended) The dielectric substrate, according to claim 12, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 5.3; and

said dielectric substrate having a low dielectric loss of 1.6×10^{-3}.

16. (Twice Amended) The dielectric substrate, according to claim 15, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 11.6; and

said dielectric substrate having a low dielectric loss of about 3.1×10^{-3}.

19. (Twice Amended) The dielectric substrate, according to claim 18, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 11.2; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

22. (Twice Amended) The dielectric substrate, according to claim 21, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 12.9; and

said dielectric substrate having a low dielectric loss of 1.4×10^{-3}.

25. (Twice Amended) The dielectric substrate, according to claim 24, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 7.1; and

said dielectric substrate having a low dielectric loss of 1.4×10^{-3}.

28. (Twice Amended) The dielectric substrate, according to claim 27, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite cubic crystalline structure;

said dielectric substrate having a low dielectric constant of 16.3; and

said dielectric substrate having a low dielectric loss of 3.8×10^{-3}.

31. (Twice Amended) The dielectric substrate, according to claim 30, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline

structure;

said dielectric substrate having a low dielectric constant of 12.1; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

34. (Twice Amended) The dielectric substrate, according to claim 33, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 13.6; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

37. (Twice Amended) The dielectric substrate, according to claim 36, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 10.9; and

said dielectric substrate having a low dielectric loss of 2.2×10^{-3}.

40. (Twice Amended) The dielectric substrate, according to claim 39, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 14.6; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

43. (Twice Amended) The dielectric substrate, according to claim 42, further comprising:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure;

said dielectric substrate having a low dielectric constant of 10.6; and

said dielectric substrate having a low dielectric loss of 2.9×10^{-3}.

50. (Amended) Buffer layers of the general formula Sr_2RESbO_6 [where] , further comprising:

said RE is a rare earth metal selected from the group consisting of Lutetium, Ytterbium, Thulium, Erbium, Holmium, Dysprosium, Yttrium, Lanthanum, Gadolinium, Samarium, Praseodymium, Europium, Neodymium and Terbium;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

said buffer layer having an ordered perovskite crystalline structure.